CITY OF CHULA VISTA

SIGNAL SYSTEMS ENGINEER I

DEFINITION

To perform and assist in a variety of assignments that involve the monitoring of the city's complex traffic signal computer systems; assist in computer driven traffic signal timing optimization, system monitoring, calibration and maintenance; and perform related work.

DISTINGUISHING CHARACTERISTICS

This is the entry-level class in the Signal Systems Engineer series. The Signal System Engineer I class is distinguished from the level II by the performance of less than the full range of duties assigned to the level II. Incumbent works under immediate supervision while learning job tasks, progressing to general supervision as procedures and processes of assigned area of responsibility are learned.

SUPERVISION RECEIVED AND EXERCISED

Receives immediate supervision from the Senior Civil Engineer; may receive technical and functional guidance from Signal Systems Engineer II.

ESSENTIAL FUNCTIONS – Functions may include, but are not limited to, the following:

Assist in the maintenance of the city's traffic signal computer system; repair and maintain complex electronic traffic control equipment; troubleshoots communication lines between microprocessors in the field and microcomputer in the office.

Review and analyze traffic characteristics in the system; assist in the preparation of timing plan and strategies; study traffic flow at intersections and calculate plan at the system control level.

Respond to emergency traffic situations studies when requested

Repair printed circuit boards and replace components on the traffic signal equipment.

Monitor the computer system and upload or download control parameters when necessary.

Work with other agencies and City departments as needed.

Respond to emergency situations in off-hours as required.

Observe safe work methods and use safety equipment; operate City vehicles skillfully and safely.

Maintain records pertaining to inspections and actions taken using a computer.

Maintain the computer database of traffic signal timing parameters; evaluate system effectiveness according to the results of the Moving Vehicle Survey conducted under the City's Traffic Monitoring Program.

Perform troubleshooting and testing on traffic signal safety monitor modules to assure they meet City specifications.

Assist Traffic Devices Technicians on the pre-installation tests of equipment for new traffic signal installations.

Prepare signal timing documentation sheets of traffic signals as archive to central computer's database.

Write reports, recommendations, and correspondences related to area of assignment.

Build and maintain positive working relationships with co-workers, other City employees and the public using principles of good customer service.

Perform other related duties as assigned.

Knowledge of:

Basic traffic signal control strategies and optimization theory including fundamentals of traffic signal timing.

Basic electrical and electronic theory and practices, including analog and digital solid-state devices;

Maintenance practices for computerized traffic timing and control devices.

Safety precautions related to complex electrical and electro-mechanical equipment.

Computer equipment and software applications related to area of assignment.

Electronic mathematics and calculations.

English usage, spelling, grammar, and punctuation.

Ability to:

Learn and perform complex maintenance and adjustment of the city's traffic signal computer systems using electronic test and soldering equipment.

Learn to plan, estimate, coordinate, and monitor computer system maintenance.

Learn to operate and maintain equipment used in the traffic signal timing system.

Read and interpret instructions, technical manuals, schematics, plans, and specifications

Make recommendations for optimization of traffic signal timing to meet the traffic flow.

Learn to use of the traffic signal optimization software such as SYNCHRO and LINKVIEW.

Learn to troubleshoot computer signal timing systems.

Learn to make necessary signal timing adjustments.

Compile and maintain records and files.

Understand and carry out oral and written instructions.

Prepare written correspondence, reports and keep work related records using a computer.

Communicate clearly and concisely, both orally and in writing.

Work overtime and off-hours shifts as needed.

Establish and maintain effective working relationships with those contacted in the course of work.

Work with various cultural and ethnic groups in a tactful and effective manner.

Experience and Training

Any combination of experience and training that would likely provide the required knowledge and abilities is qualifying. A typical way to obtain the knowledge and abilities would be:

Experience:

One year of experience in computerized traffic signal equipment maintenance and repair. Some computerized traffic signal timing experience is desirable.

Training:

Equivalent to a Bachelor's degree from an accredited college or university with major course work in Engineering, Electronic Systems Technology or a related field.

License or Certificate

Possession of a valid California driver's license.

PHYSICAL DEMANDS

On a continuous basis, sit, stand, bend, climb ladders (up to 30 feet), stoop, kneel, crouch, crawl and twist for varying periods in the course of work; use hands and fingers to grasp tools; make repetitive hand and body motions; twist and reach below and above shoulder; lift or carry objects weighing up to 50 pounds with assistance or equipment; work in a bucket up to 40 feet in the air; to communicate with co-workers using a two-way radio and hand signals; use telephone, and write or use a keyboard to communicate through written means; see in the normal vision range with or without correction to read computer screen, blueprints, and drafting plans; hear in the normal range with or without correction.

WORKING ENVIRONMENT:

Work is performed both indoors and outdoors. Some work is performed in a carpeted and air-conditioned office environment with fluorescent lighting and moderate noise level. Some movement is required from office to office and there is exposure to the external environment when going to outlying city buildings. Occasionally work is performed outdoors; movement is required from worksite to worksite and there is exposure to the external environment during the course of work. Some work requires exposure to moderate to heavy traffic noise levels. Work may require exposure to high voltage and unprotected heights.

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